Amendments to the Drawings

Please replace the drawing sheets with the attached replacement drawing sheets on which Figs. 1-5 appear. Although Figs. 1-5 appear in the U.S. Patent Application Publication No. 2007/0119829, the USPTO does not have record of receiving drawings other than those submitted in the priority document World International Property Organization ("WIPO") Patent Application Publication No. WO 2005/056230. To complete the USPTO records, Applicants furnish Figs. 1-5 from the priority document. As Figs. 1-5 of the replacement drawing sheets are identical to those of the priority document, the amendments to the drawings do not introduce new matter.

Remarks

The Office Action dated July 11, 2011, has been received and carefully reviewed. The preceding amendments and following remarks form a full and complete response thereto. Claims 1-16 and 19-27 are pending in the present application and are submitted for reconsideration.

Drawings

The Office Action states that "[t]he subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention" and requires Applicants to furnish a drawing. Office Action at p. 2. As evidenced by U.S. Patent Application Publication No. 2007/0119829 (the "'829 publication"), Applicants have already furnished drawings. *See* '829 publication at Figs. 1-5. However, the USPTO does not have record of receiving drawings other than those submitted in the priority document WIPO Patent Application Publication No. WO 2005/056230. As noted above, Applicants submit herewith replacement sheets having Figs. 1-5 from the priority document. Accordingly, Applicants respectfully request withdrawal of the objection.

The replacement drawings do **not** introduce new matter because the Figs. 1-5 of the replacement drawing sheets are identical to Figs. 1-5 of the priority document.

The Office Action also objects to the drawings because they are not on a separate sheet of paper. Office Action at p. 3. As noted above, Applicants have submitted replacement drawing sheets. The replacement drawings sheets are separate sheets of paper, and Applicants respectfully request reconsideration and withdrawal of the objection

Rejection of Claims 1-5, 9-16 and 19-27 under 35 U.S.C. § 103

Claims 1-5, 9-16 and 19-27 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable by reason of obviousness over U.S. Patent No. 5,227,601 to Black ("Black") in view of Japanese Patent No. 2-127974 to Motoi *et al.* ("Motoi"), and further in view of Japanese Patent No. 8-267242 to Imanaga *et al.* ("Imanaga"), in view of U.S. Patent No. 3,904,845 to Minkiewicz ("Minkiewicz") in view of U.S. Patent No. 5,601,735 to Kawamoto *et al.* ("Kawamoto"). Applicants respectfully traverse the rejection and submit that claims 1-5, 9-16 and 19-27 are patentable for the following reasons.

Independent Claim 1

Claim 1, upon which claims 2-5, 10, 12-16 and 20 depend, is drawn to an orbital welding device for mobile use for joining a first pipe end and a second pipe end along a circumferential joint by means of at least one weld seam. In particular, the orbital welding device is for producing a pipeline to be laid on land. The orbital welding device comprises at least a guide ring, an orbital carriage, a feed device, a welding head, a connecting line, a mobile welding device, an orbital position sensor and a first process parameter control. The guide ring is oriented relative to the first pipe end and the circumferential joint. The orbital carriage is displaceably guided at least along a section of the guide ring. The feed device is configured to move the orbital carriage under motor power along the guide ring. The welding head is arranged on the orbital carriage in alignment with the circumferential joint so that, by moving the orbital carriage, the weld seam is produced at least along a section of the circumferential joint. **The mobile welding device is positioned a distance away from the orbital carriage and is connected via the connecting line to the welding head**. The mobile welding device provides the power required for producing the weld seam. **The orbital position sensor is configured to**

detect an orbital position of the orbital carriage. The welding device is a high-power laser beam source. A laser beam is produced by means of the high-power laser beam source. The connecting line is a waveguide is configured to guide the laser beam to the orbital carriage. The welding head is a laser welding head is configured to direct the laser beam into a laser welding zone and for the consequent production of the weld seam. **The first process parameter control is connected to the orbital position sensor and at least to the high-power laser beam source in such a way that laser radiation parameters are automatically adapted as a function of the orbital position of the orbital carriage.**

Fig. 4 (reproduced below) of Applicants' Specification illustrates one possible embodiment of the orbital welding device in claim 1. In the example shown in Fig. 4, the orbital welding device has a mobile welding device in the form of a high power laser beam source 9 that is positioned a distance away from orbital carriage 7 on a transport vehicle 35 and is connected via waveguide 11 of tube bundle 50 to laser welding head 12.

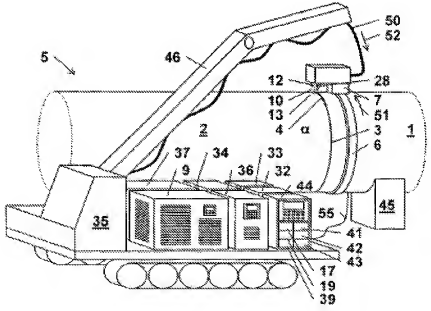
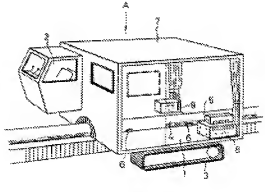


Fig. 4

The cited references neither teach nor suggest "a mobile welding device which is positioned a distance away from the orbital carriage and is connected via the connecting line to the welding head and provides the power required for producing the weld seam," as recited in claim 1.

The Office Action acknowledges that Black fails to disclose this feature. Office Action at pp. 4-5. Instead, the Office Action relies on Motoi as purportedly "teach[ing] a mobile welding vehicle or transport vehicle which is a distance away from the orbital carriage" and on Imanaga as purportedly "teach[ing] [a] connecting line to the welding head." *Id.* at pp. 5-6.

Motoi discloses mobile welding equipment A with a casing with roof 7 and welding machine 8 provided therein. Motoi at Abstract and Figure (reproduced below). The mobile welding equipment A partly surrounds the steel pipes 5 and travels along the steel pipes 5. *Id.* The welding equipment 8 is located inside the mobile welding equipment A. As the welding machine 8 of Motoi is provided **within** mobile welding equipment A of Motoi, the mobile welding equipment A is **not** positioned a **distance away** from the welding machine 8. Accordingly, Motoi fails to teach or suggest "a mobile welding device which is positioned a **distance away** from [an] orbital carriage," as is recited in claim 1. (emphasis added).



Furthermore, because the welding machine 8 of Motoi is provided **within** mobile welding equipment A of Motoi, the mobile welding machine A is **not connected via a connecting line** to

a welding head of welding machine 8. Accordingly, Motoi fails to teach or suggest a "mobile welding device which ... is **connected via the connecting line** to the welding head," as recited in claim 1. (emphasis added).

Imanaga also does not teach or suggest "a mobile welding device which is positioned a distance away from the orbital carriage and is connected via the connecting line to the welding head and provides the power required for producing the weld seam," as recited in claim 1. Fig. 1 of Imanaga shows a welding drive controller 11 connected to welding control head 9 and a sensor image processing device 22 connected to a sensor head 21, but nothing in Imanaga teaches or suggests that the welding drive controller 11 or sensor image processing device 22 is **mobile**. In other words, there is no teaching or suggestion of arranging the welding drive controller 11 of Imanaga at a distance from the pipe on a vehicle for mobile use. Thus, Imanaga fails to teach or suggest "a **mobile welding device** which ... is **connected via the connecting line** to the welding head," as recited in claim 1. (emphasis added).

Therefore, the cited references fail to teach or suggest "a mobile welding device which is positioned a distance away from the orbital carriage and is connected via the connecting line to the welding head and provides the power required for producing the weld seam," as recited in claim 1, and Applicants respectfully submit that the rejection of claim 1 is improper.

Applicants presented similar arguments explaining why neither Motoi nor Imanaga teach or suggest the "mobile welding device" and "connecting line" features in the previous reply. Reply to Final Office Action filed November 29, 2011, at pp. 17-19. The Office Action, in an identical fashion, continues to rely on Motoi and Imanaga as teaching these features. However, the Office Action made absolutely no attempt to address the substance of Applicants' arguments. "Where the applicant traverses any rejection, the examiner should, if he or she repeats the

rejection, take note of the applicant's argument and **answer the substance of it**." MPEP § 707.07(f) (emphasis added). Applicants respectfully request that the substance of Applicants' arguments be addressed, as directed by the MPEP, or the rejection be withdrawn. *See* MPEP §§ 706.02(j) ("It is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply.") and 707.07(f) ("In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application.").

In addition to the foregoing, the cited references do not teach or suggest:

- an orbital position sensor configured to detect an orbital position of the orbital carriage and
- **a first process parameter control … connected to the orbital position sensor** and at least to the high-power laser beam source **in such a way that laser radiation parameters are automatically adapted as a function of the orbital position of the orbital carriage,**

as recited in claim 1. (emphasis added).

The Office Action acknowledges that Black fails to disclose this feature. Office Action at pp. 4-5. Instead, the Office Action relies on Imanaga as purportedly "teach[ing] … an orbital position sensor 21 … for detecting the orbital position of the orbital carriage; and a first process parameter control which is connected to the orbital position sensor" and on Minkiewicz as purportedly "teach[ing] a control unit (30) … adapted to control automatically ON and OFF the positions of the welding head (23) according to present programs" to "provide[] a means to synchronize the carriage positions with the welding head along circular movements." Office Action at pp. 5-6.

Imanaga discloses a welding control head 9 that runs on a rail 10. Imanaga at ¶ 0041 and Fig. 1. The positions of obstacles in the form of groove blocks 3, which cross the weld line in

order to fix the two pipe sections relative to each other which pipe sections are to be welded together, are detected. *Id.* at Abstract. The method of Imanaga interrupts the welding process when the welding torch 6 of welding control head 9 approaches a groove block 3, jumps the groove block 3 and continues welding after passing the groove block 3. *Id.* at Fig. 8. As a result, a weld seam is produced between the groove blocks 3 in a first step, and the pipe sections are fixed to each other. *Id.* at Abstract. The groove blocks can then be removed, and the weld seam is completed at the sites where the groove blocks had been positioned. *Id.*

However, Imanaga's disclosure of jumping a welding torch 6 over groove blocks is not a teaching or a suggestion of automatically adapting "**laser radiation parameters** … as a function of the orbital position of the orbital carriage," as recited in claim 1. Accordingly, Imanaga fails to teach "that laser radiation parameters are automatically adapted as a function of the orbital position of the orbital carriage," as recited in claim 1.

Minkiewicz also fails to teach or suggest this feature. Minkiewicz discloses a method for simulating the orbital welding of fixed tubular metal members. Minkiewicz at col. 1, lines 5-8. Minkiewicz discloses a control cabinet 30 designed to transmit predetermined movements of rotation to shaft 8 and rotary frame 9 "while imparting to the driving carriage 15 and to the welding head 23 secured thereto a movement of translation along the slideway 13, which is also predetermined and may be synchronized … with the said rotation of frame 9." *Id.* at col. 5, lines 6-12. Additionally, Minkiewicz discloses that the "control cabinet 30 is also adapted to control automatically the ON and OFF positions of welding head 23 according to preset programs; thus, one program may be adapted to start the heating of the sheet-metal plate elements 12a, 12b by means of the welding torch 24 before starting the rotation of rotary frame 9." *Id.* at col. 5, lines 20-26.

In other words, Minkiewicz merely discloses synchronized predetermined movement of driving carriage 15/welding head 23 and shaft 8/rotary frame 9 and automatic control of on/off positions of welding head 23 according to preset programs. Minkiewicz does not disclose an orbital position sensor and does not disclose automatic adapting of laser radiation parameters. Thus, Minkiewicz does not teach or suggest that control cabinet 30 "is connected to [an] orbital position sensor" and does not teach or suggest "that laser radiation parameters are automatically adapted as a function of the orbital position of the orbital carriage," as recited in claim 1. Accordingly, like Imanaga, Minkiewicz does not teach or suggest this feature.

Further, Kawamoto, on which the Office relies as purportedly teaching laser welding, also does not teach or suggest this feature. Kawamoto discloses a control unit 101 for controlling a welding head 102, an optical feeding reel 103 and a laser oscillator 104. Kawamoto at col. 8, lines 20-30 and Fig. 10. Kawamoto also discloses position sensors 201-1, 201-2, 201-3 and 201-4 that detect the orbital position of work head 18B. Kawamoto at col. 13, lines 10-38. Control unit 101 of Fig. 10 of Kawamoto is **not connected** to the position sensors 201-1, 201-2, 201-3 and 201-4 of Figs. 21 and 22 of Kawamoto, as required by the claim, because the two are not even disclosed in the same embodiment of Kawamoto. *See* Kawamoto at col. 8, lines 16-19 and col. 11, lines 11-12.

Plus, Kawamoto does not teach or suggest that **laser radiation parameters** are **automatically adapted** as a function of the orbital position of work head 18B. To the contrary, control unit 101 has nothing do with position sensors 201-1, 201-2, 201-3 and 201-4, and the position sensors 201-1, 201-2, 201-3 and 201-4 have nothing to do with the laser radiation parameters of Kawamoto. Instead, Kawamoto discloses that "position sensors 201-1, 201-2, 201-3 and 201-4 are provided around the outer circumferential guide 5B for detecting the

position of the work head 18B in order to prevent interference between the laser beam and the tubular barrel supporting device 102B." Kawamoto at col. 13, lines 18-22. In response to a position signal from the position sensors 201-1, 201-2, 201-3 and 201-4 indicating that the work head 18B has come to a position in which a leg of the tubular barrel supporting device 102B would interfere with the laser beam, control unit 101B lowers the leg of the tubular barrel supporting device 102B to prevent the interference. As the raising and lowering of legs of the tubular barrel supporting device 102B is not the adaption of a laser radiation parameter, Kawamoto does not disclose that "laser radiation parameters are automatically adapted as a function of the orbital position of the orbital carriage," as required by amended claim 1.

Thus, the rejection of claim 1 is improper for the separate, independent reason that none of the cited references teach or suggest the "orbital position sensor" and "a first process parameter control" as claimed. Moreover, Applicants note that, by the automatic adapting of the laser radiation parameters as a function of the orbital position, the influence of gravity may be compensated. For instance, the welding situation when welding at the top of a horizontally laying pipe is different than the welding situation when welding at the underside of the pipe. Laser radiation parameters may be automatically adapted as a function of the orbital position to produce equal quality seams at all points of the orbit of the weld seam. The cited references teach or suggest nothing like this.

Accordingly, Applicants respectfully submit that claim 1 is patentable over the cited references and respectfully request reconsideration and withdrawal of the rejection.

Dependent Claims 2-5, 10, 12-16 and 20

Claims 2-5, 10, 12-16 and 20 depend, directly or indirectly, on independent claim 1 and are patentable over the combination of Black, Motoi, Imanaga, Minkiewicz and Kawamoto for

the same reasons discussed above with regard to claim 1 as well as for additional limitations they recite.

For example, in regard to claim 3, none of the cited references teaches or suggests an orbital welding device comprising both "a laser welding head configured to direct the laser beam into a laser welding zone," as recited in claim 1, and "a process gas nozzle arranged indirectly or directly on the orbital carriage and configured to supply process gas to the region of the laser welding zone," as recited in claim 3. The Office Action has failed to show that a combination of laser welding **and** gas welding as opposed to one **or** the other was within the ability of one of ordinary skill in the art at the time of the invention. Accordingly, the rejection of claim 3 is improper for this reason as well.

In regard to claim 4, none of the cited references teaches or suggests an orbital welding device comprising both "a laser welding head configured to direct the laser beam into a laser welding zone," as recited in claim 1, and "a wire nozzle arranged indirectly or directly on the orbital carriage and configured to supply a wire into the laser welding zone," as recited in claim 4. The Office Action has failed to show that a combination of laser welding **and** wire welding as opposed to one **or** the other was within the ability of one of ordinary skill in the art at the time of the invention. Accordingly, the rejection of claim 4 is improper for this reason as well.

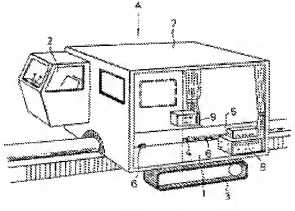
In regard to claim 11, none of the cited references teaches or suggests:

- a process sensor arranged indirectly or directly on the orbital carriage in such a way that electromagnetic radiation from the laser welding zone is detected; and
- a second process parameter control connected to the process sensor and at least the high-power laser beam source in such a way that at least GMAW arc parameters, the speed of advance of the orbital carriage and the orientation of the laser beam are automatically adapted as a function of the detected radiation,

as recited in claim 11. The Office Action made no attempt to explain how the cited references teach or suggest this feature. Accordingly, the rejection of claim 11 is improper for this reason as well.

In regard to claim 12, none of the cited references teaches or suggests "an optical seam quality sensor arranged indirectly or directly on the orbital carriage, tracking the laser welding zone and adapted for making optical recordings of the weld seam produced," as recited in claim 12. The Office Action made no attempt to explain how the cited references teach or suggest this feature. Accordingly, the rejection of claim 12 is improper for this reason as well.

In regard to claims 15 and 25, none of the cited references teaches or suggests "a transport vehicle [that] is moved longitudinally under motor power outside the first pipe and the second pipe," as recited in claims 15 and 25. To the contrary, Motoi discloses a mobile welding equipment A that partly surrounds the steel pipes 5. Motoi at Abstract and Figure (reproduced below). Instead of traveling outside steel pipes 5, the mobile welding equipment A of Motoi travels along the steel pipes 5. *Id.* As none of the cited references teaches or suggests this feature, the rejections of claims 15 and 25 improper for this reason as well.



Claim 16 recites a "transport vehicle [that] is moved longitudinally under motor power outside the first pipe and the second pipe." For the reasons explained above in regard to claims

15 and 25, the cited references do not teach or suggest this feature, and the rejection of claim 16 is improper for this reason as well.

Dependent Claims 9, 11, 19 and 21-27

Claims 9, 11, 19 and 21-27 depend, directly or indirectly, on independent claim 6. The rejections of claims 9, 11, 19 and 21-27 as unpatentable over Black, Motoi, Imanaga, Minkiewicz and Kawamoto are improper because, as acknowledged by the Office Action, the combination of Black, Motoi, Imanaga, Minkiewicz and Kawamoto does not teach or suggest each and every feature of claim 6. *See* Office Action at p. 8. Specifically, claim 6 recites "a gas metal arc welding (GMAW) head" and several GMAW components. The Office Action explicitly acknowledges that the cited references do not disclose these features. Office Action at p. 8 ("Black in view of Motoi, Imanaga, Minkiewicz, and Kawamoto disclose all of the limitations of [claim 6] **except for a gas metal arc welding (GMAW) head and its components**." (emphasis added)). Accordingly, Applicants respectfully submit that claims 9, 11, 19 and 21-27 are patentable over Black, Motoi, Imanaga, Minkiewicz and Kawamoto for the reason acknowledged by the Office Action with respect to claim 6 as well as for additional limitations they recite.

For example, in regard to claim 9, none of the cited references teaches or suggests "a first process parameter control which automatically varies GMAW arc parameters and the orbital carriage's speed of advance as a function of the orbital position of the orbital carriage," as recited in claim 9. For instance, the Office Action has made no attempt to explain how the cited references teach or suggest varying speed of advance of an orbital carrier as a function of the orbital position of the orbital carriage. Accordingly, the rejection of claim 9 is improper for this reason as well.

In regard to claim 19, the cited references do not teach or suggest an "orbital welding device ... adapted to perform the welding of the pipe studs by means of only one orbit pass," as recited in claim 19. The Office Action does not address this feature. Accordingly, the rejection of claim 19 is improper for this reason as well.

In regard to claim 22, none of the cited references teaches or suggests "an optical seam quality sensor arranged indirectly or directly on the orbital carriage, tracking the laser welding zone and adapted for making optical recordings of the weld seam produced," as recited in claim 22. The Office Action made no attempt to explain how the cited references teach or suggest this feature. Accordingly, the rejection of claim 22 is improper for this reason as well.

Rejection of Claims 6-8 under 35 U.S.C. § 103

Claims 6-8 were rejected under 35 U.S.C. § 103(a) as being as being allegedly unpatentable by reason of obviousness over Black in view of Motoi and further in view of Imanaga and further in view of Minkiewicz and further in view of Kawamoto and further in view of U.S. Patent No. 5,932,123 to Marhofer *et al.* ("Marhofer"). Applicants respectfully traverse the rejections and submit that claims 6-8 are patentable for at least the following reasons.

Independent Claim 6

Claim 6, upon which claims 7-9, 11, 19 and 21-27 depend, is drawn to an orbital welding device for mobile use for joining a first pipe end and a second pipe end along a circumferential joint by means of at least one weld seam. The orbital welding device comprises at least a guide ring, an orbital carriage, a feed device, a welding head, a connecting line, and a mobile welding device. The guide ring is oriented relative to the first pipe end and the circumferential joint. The orbital carriage is displaceably guided at least along a section of the guide ring. The feed device

is configured to move the orbital carriage under motor power along the guide ring. **The welding head is arranged on the orbital carriage** in alignment with the circumferential joint so that, by moving the orbital carriage, the weld seam is produced at least along a section of the circumferential joint. The mobile welding device is a distance away from the orbital carriage and is connected via the connecting line to the welding head. The mobile welding device provides the power required for producing the weld seam. The welding device is a high-power laser beam source. A laser beam is produced by means of the high-power laser beam source. The connecting line is a waveguide configured to guide the laser beam to the orbital carriage. The welding head is a laser welding head configured to direct the laser beam into a laser welding zone and for the consequent production of the weld seam. A gas metal arc welding (GMAW) head is arranged indirectly or directly on the orbital carriage. The connecting line includes a GMAW power line, a GMAW process gas line, and a GMAW wire feed line. A GMAW power source is a distance away from the orbital carriage and is connected via the GMAW power line to the GMAW head for forming the GMAW arc. A GMAW process gas store is a distance away from the orbital carriage and is connected via the GMAW process gas line to the GMAW head for supplying the GMAW process gas. And, **welding by the laser beam is combined with welding by the GMAW head in such a way that the laser beam and the GMAW arc weld simultaneously during movement of the orbital carriage**.

Applicants respectfully submit that claim 6 is patentable because the cited references, alone or in combination, do not teach or suggest each and every feature of claim 6. For example, none of the cited references teach or suggest that "welding by the laser beam is combined with welding by the GMAW head in such a way that the laser beam and the GMAW arc weld simultaneously during movement of the orbital carriage," as recited in claim 6.

In the proposed combination of Black, Motoi, Imanaga, Minkiewicz and Kawamoto, the Office relies on Kawamoto as purportedly teaching a laser beam source and waveguide in a welding system and alleges that "[i]t would have been obvious … to modify Black in view of Motoi, Imanaga, and Minkiewicz with laser beam source and waveguide of Kawamoto." *See* Office Action at pp. 6-7. The Office Action acknowledges that the combination of Black, Motoi, Imanaga, Minkiewicz and Kawamoto does not disclose "a gas metal arc welding (GMAW) head and its components." *Id.* at p. 8. Instead, the Office Action relies on Marhofer as "teach[ing] a gas metal arc welding (GMAW) head and its components," and alleges that "[i]t would have been obvious … to modify Black in view of Motio, Imanaga, Minkiewicz, and Kawamoto with a gas metal arc welding (GMAW) head and its components of Marhofer." *Id.* Thus, in the combination of Black, Motoi, Imanaga, Kawamoto and Marhofer proposed in the Office Action, the laser beam source and waveguide of Kawamoto and the GMAW head of Marhofer are **combined in some undefined manner** in a welding system.

The rejection is improper because none of the cited references teaches or suggests an orbital welding device comprising both "a laser welding head" and "a gas metal arc welding (GMAW) head," as recited in claim 6. Kawamoto discloses a laser welding device that has a laser welding head 102 but does not have a GMAW head. *See* Kawamoto at Fig. 10 and col. 8, lines 20-30. Marhofer discloses a pipeline welding system that has a GMAW carriage 8 but does not have a laser welding head. *See* Marhofer at Figs. 1 and 3 and col. 5, lines 6-20. None of the cited references teaches or suggests welding pipelines using a combination of laser beam welding **and** welding by GMAW as opposed to one **or** the other. One of ordinary skill in the art at the time of the invention, based on the cited references, at most would have found it obvious to use one or the other. The knowledge to weld pipelines using a combination of laser beam

welding **and** welding by GMAW was **not** within the level of ordinary skill in the art at the time the claimed invention. To the contrary, this knowledge was gleaned **only** from Applicants' disclosure. Accordingly, the Office Action's conclusion of obviousness is based on improper hindsight reasoning. *See* MPEP § 2145(X)(A) (quoting *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971)) (a reconstruction based on hindsight reasoning is only proper "so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure").

In addition, the rejection is improper because, even assuming *arguendo* that it would have been obvious to **somehow combine** the laser beam source and waveguide of Kawamoto and the GMAW head of Marhofer, it would not have been obvious for "welding by the laser beam [to be] **combined** with welding by the GMAW head **in such a way that the laser beam and the GMAW arc weld simultaneously during movement of the orbital carriage**," as recited in claim 6. (emphasis added). The welding with the laser beam of Kawamoto is neither taught nor suggested as being performed simultaneously with GMAW welding. Likewise, the GMAW welding of Marhofer is neither taught nor suggested as being performed simultaneously with laser beam welding. None of the cited prior art, alone or in combination, teach or suggest simultaneously welding with a laser beam and GMAW arc during movement of an orbital carriage, and, as such, it would not have been obvious to one of ordinary skill in the art at the time of the invention to so.

In regard to the "welding by the laser beam is combined with welding by the GMAW head in such a way that the laser beam and the GMAW arc weld simultaneously during movement of the orbital carriage" feature of claim 6, the Office Action asserts that the proposed

combination "fully meets the above limitation as claimed because the prior arts teach the combination of welding head with the torch or welding wire as one unit. Therefore, it is known in the art that such a configuration provides non-interruption during welding pass." Office Action at p. 8. Contrary to the Office Action's assertion, the cited references do not teach or suggest different welding techniques used in one welding unit. One of ordinary skill in the art would understand that a welding by means of a welding head with a torch is same as welding by means of a wire because the torch is used to heat the wire. For example, the heating of the wire can be accomplished by burning gas or by producing an electrical arc between the wire and object to be welded. Imanaga shows the welding torch 6 and the wire 7 where the welding torch heats the wire so as to gain the liquefied material for filling the weld gap. The cited references simply do not teach or suggest simultaneous welding by the laser beam and by GMAW as recited in claim 6. Accordingly, the rejection of claim 6 is improper because the cited references do not teach or suggest "welding by the laser beam is combined with welding by the GMAW head in such a way that the laser beam and the GMAW arc weld simultaneously during movement of the orbital carriage," as recited in claim 6.

Applicants respectfully submit that claim 6 is patentable over the cited references and respectfully request reconsideration and withdrawal of the rejection.

Dependent Claims 7 and 8

Claims 7 and 8 depend on independent claim 6 and are patentable over the cited references for the same reasons discussed above with regard to claim 6 as well as for additional limitations they recite.

Conclusion

All of the stated grounds of rejection have been sufficiently addressed herein. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections, and that they be withdrawn. Applicants submit that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

The Applicants respectfully petitioned for a three-month extension of time. Any fees for the extension together with any additional fees may be charged to Counsel's Deposit Account No. 02-2135.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

Respectfully submitted,

January 11, 2012
Date

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